REMARKS:

In the office action dated August 26, 2005, the Examiner rejected Claims 1-19 of the present application under 35 U.S.C. § 103(a), citing Rohrbach et al. (US 6,379,564) in view of Drozd et al. (US 6,835,218). It is submitted that the amendments and arguments presented herein overcome the Examiner's rejections, and that for at least the reasons presented herein, the present application is now in condition for allowance.

Amendments to the Claims

Amendments have been made to Claims 1, 4, 5, 8, 9, and 17-19. Claims 3, 6, and 10 have been canceled.

Support for the amendments to the claims providing that the ion exchange resin has a fuel additive bound and released through chemical interactions is found in the specification on page 7, at lines 16-17, stating: "The ion-exchange resins useful herein can be any ion-exchange resin able to releasably or reversibly bind a material useful as a fuel additive." Further, the chemical nature of the *binding* of additive elements is provided on page 6 at line 21, and page 7 at lines 1-2, providing that: "In the practice of the present invention, the fuel additive is chemically or physically bound to, coordinated with, chelated or otherwise associated with the ion-exchange resin through the acidic or basic groups located on the resin." The *displacement* of additive elements by chemical interactions is provided on p. 7 at lines 2-4, stating that: "The ion-exchange resins are designed to have a characteristic and known binding/equilibrium constant so that the exchange or release of the bound material can be tailored to the desired end use." As shown in the Examples beginning on page 9, triazine additives may be retained through chemical interaction with a strongly acidic reticular resin, and then displaced upon interaction with a fuel by virtue of chemical interactions.

Rejections of the Claims Under 35 U.S.C. § 103(a)

In rejecting the claims under 35 U.S.C. § 103(a), the Examiner relied on Rohrbach et al. as disclosing a filter device for fuel or other hydrocarbon fluids comprising an adsorbent reagent having a releasably attached fuel additive, which is argued to be suggestive of an ion exchange resin. Further, the Examiner argued that Drodz et al. suggest an ion exchange resin by teaching controlled-release additives achieved through mixtures with substances such as thermoplastic

resins, thereby rejecting Claims 1 and 17-19. The Examiner rejected Claims 2 and 14-16 as teaching the treating of gasoline fuel in vehicles. The Examiner contended that anionic and cationic ion-exchange resins (as in Claims 3-5) are suggested by Rohrbach et al. and Drodz et al. Finally, the Examiner argued that the subject matter of Claims 6-10 and 11-13 are also suggested by Rohrbach et al. and Drodz et al., including the nature of the additives as well as the use of a membrane.

These references do not suggest, and would not teach one skilled in the art, the presently claimed invention. Rohrbach et al. provide for a "chemically active filter element" that is made up from a plurality of chemically *inactive* fibers that hold and permit displacement of an additive through the application of physical forces. (Col. 3, lines 22-23) The "chemically active" filter element supplies an additive to a fluid through only two means: (1) retaining a liquid chemical reagent within hollowed filter fibers by capillary forces or "wicking", or (2) holding/trapping solid reagents within the fibers. (Col. 3, lines 63-67; Col. 9, lines 15-21) The additives themselves may have chemical properties upon contact with a fluid or contaminants, however, there is no teaching in Rohrbach et al. of a chemical interaction between the filter elements and the additive that promotes both the binding and displacement of the additive in the fuel.

The Examiner refers to Rohrbach et al. mentioning "high binding activities" at Col. 7, lines 45-49 and 61-67; however, the "activity" referred to in these passages relates to an additive's ability to bind to a *contaminant*—not the fiber matrix. The only chemical interactions described by Rohrbach et al. are those between the additive and the fluid, between the additive and a contaminant in the fluid, or between a polymeric fiber and the fluid. (Col. 3, lines 44-59) Rohrbach et al. do not suggest strategic anionic/cationic chemical interactions between an additive and the fiber framework, nor do they suggest that chemical binding/equilibrium interactions could displace a fuel additive bound in such a manner at a controlled rate.

The presently claimed invention is distinguishable from Rohrbach et al. by providing for an ion exchange resin to which an additive is anionically/cationically bound and may be displaced through chemical interactions, as opposed to placement of an additive by physical entrapment and subsequent displacement by fluid flow. Additionally, Rohrbach et al. provide for a chemically inert framework of fibers enabling retention of the additive, and teaches that the additive is retained within "wicking fibers" or "entrapped in" the fiber material." (Col. 8, lines 51-64) In summary, the retention and displacement of additive compounds in the filter element

suggested by Rohrbach et al. is based upon structural and physical strategies, rather than chemical interactions and/or forces as presently claimed.

Even in view of Drodz et al., there is no teaching or suggestion directed toward the presently claimed ion exchange resins and their methods of use. The compositions described by Drodz et al. rely upon an additive component (i) supported by a matrix, or (ii) encapsulated by a coating of a sustained release component. (Col. 15, line 6) The sustained release component is an inert polymeric material that provides a solid or semi-solid matrix for enhancing the controlled release of a chemical additive. The sustained release material prevents total immersion or dissolution of the additive, but on its own has no identifiable interactions or chemical properties affecting an additive's release. Importantly, Drodz et al. teach that "the polymeric material serves as a *physical barrier* between the fuel and the additive component to slow down the release, for example, diffusion, of additives into fuel." (emphasis added, Col. 12, lines 31-34)

While Drodz et al. teach a broad spectrum of chemical compounds serving as potential support matrices or coating materials, there is no suggestion of cationic or anionic binding between the fuel additive and these support substances. The polymers presented as matrices or resins by Drodz et al. are not utilized to effectuate controlled anionic/cationic chemical binding to an additive, even upon contemplation of the array of polymers and monomers presented in Col. 14.

As demonstrated in the presently claimed application, an ion-exchange resin comprises a polymeric resin that has an anionic/cationic binding capacity reflecting the number of available functional groups available to chemically bind an additive material. (Present Application, p. 5, lines 14-15) While the polymeric materials such as resins are disclosed by Drodz et al., none of these materials *interacts* with the additive. Further, the rate of additive release contemplated by Drodz et al. is stipulated as dependent upon *matrix concentration* and *additive concentration*—rather than upon chemical forces, or relative to chemical interactions with other components. (Col. 17, lines 57-58, and Col. 22, lines 56-57)

Thus, Rohrbach et al., alone or in view of Drodz et al., do not suggest the presently claimed invention. Neither reference teaches the presently claimed invention, particularly the use of anionic/cationic binding to control the rate of release of a fuel additive, as provided in the present claims. Therefore, the subject matter of Claims 1 and 17-19 is not suggested by the references.

Additionally, because the devices and methods of the presently claimed invention are non-obvious, it is submitted that their use in treating gasoline fuel in vehicles would also be non-obvious, thereby overcoming the Examiner's objections to Claims 2 and 14-16. Further, the polymeric resins and monomer groups described in the references are not analogous to those of the presently claimed invention as discussed above, and thus the Examiner's objections to those claims should also be overcome. Finally, Claims 6 and 10 have been deleted, and the subject matter of Claims 7-9 and 11-13 are dependent on non-obvious Claim 1.

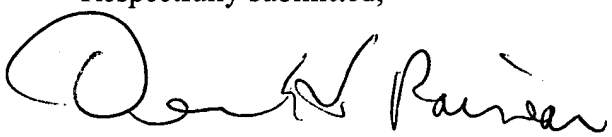
Therein, in view of the present amendments and for at least the reasons presented above, it is respectfully submitted that the present invention would not have been obvious in view of the cited references.

It is respectfully submitted that the Examiner's rejections under 35 U.S.C. § 103(a) are hereby overcome and that the presently claimed application now in condition for allowance. Thank you for your attention to this matter, and please contact me at your convenience if you have any questions or require additional information.

Petition/Fees

It is respectfully requested that the time to respond to the Office Action dated August 26, 2005 be extended one (1) month to expire after December 26, 2005. Please charge Deposit Account No. 05-1372 in the amount of $120.00 for the one-month extension of time fee. It is believed that no other fees are due with this filing. However, in the event the calculations are incorrect, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment in fees associated with this communication to Deposit Account No. 05-1372. This paper is submitted in duplicate.

Respectfully submitted,



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